

Real-Time Listening and the Act of Mental Pointing: Deictic and Indexical Claims

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Music can be considered as an artifact, as a static structure that can be objectified in imagination without being presented to the senses. We can think, e.g., of the third symphony of Bruckner or a Beatles song as one single thing. This is a reification of music, considered outside of time, to be dealt with at a virtual level of reality and relying on symbolic replicas of the sounds. Real music, on the contrary, is a temporal and sounding phenomenon, evolving in real time and impinging on the senses. As such, it calls forth processes of sense-making and engagements, allowing the listener to enact a musical experience and to react even bodily to the sounds (Krueger 2009, 2011; Schiavio et al. forthcoming).

This contribution elaborates on this distinction by arguing for an *experientialist* as against a merely *conceptual-symbolic* approach to music. The latter approach is characterized by ‘distancing’ and ‘polarization’ between the listener as a subject and the music as an object, to use object Werner’s and Kaplan’s (1963) terminology (see Reybrouck 2005b, 2006 for a critical discussion); the former approach is ‘dynamic-vectorial’ and ‘directive’ by its very nature, stressing the field of pointing rather than the symbolic field of meaning. This field of pointing – also called the *deictic field* of meaning (Bühler 1934; Hanks 2005) – is an interesting frame of reference. It provides operational tools for the listener’s making sense out of the perceptual flux by raising two major questions: what are the entities he/she is pointing at and how does he/she delimit the denotable things as signified (Reybrouck 1999)? The questions are related to *listening strategies* rather than to an objective analysis of the music, taking seriously the idiosyncrasies of individual listeners and their individual listening learning histories (Delalande 1998, 2013).

Deixis and Deictic Terms

The concept of ‘deixis’ goes back to Bühler (1934) who drew an explicit analogy between gestural and linguistic means for showing direction or place. Conceiving of two basic types of linguistic expressions – namely *deictics* (or ‘pointing words’) as opposed to *symbols* (or ‘naming words’) – he presented as a main thesis that deictic expressions refer to a deictic field of language whose zero point (the Origo) is fixed by the person who is speaking (I), the place of utterance (here) and the time of utterance (now). Deictic terms, accordingly, are words that pick out or point to things in relation to the participants in a speech situation (Clark 1978). Terms as ‘this/that’, ‘here/there’, ‘I/you’, ‘my/your’, etc. are typical examples. They are related to the notion of *indexicality* (Nunberg 1993; West 2011) and the notion of *pointing* and its correlates (Kita 2003). Deixis, as a source of reference, thus locates individual elements in context, rather than simply tagging them. It has its origin within the speaking situation, with the meaning of deictic expressions depending crucially on when, where and by whom they are used. Each ordinary speech situation, therefore, can be systematized in terms of personal, spatial and temporal deixis (the so-called *socio-spatio-temporal axes*). Deictic expressions, therefore, have to be defined with reference to the speech event, its participants and its settings in order to allow an operational

description of space/time moments and their relations to the position and time of utterance (Fillmore 1972, 1982).

Deictic procedures, further, focus the hearer's attention towards a specific item of the deictic space (Ehlich 1982) and realize a form of *joint attention*, the sharing of overlap in the focal attention of the parties of a referential exchange (Diessel 2006; West 2011; Grassmann & Tomasello 2009; Seemann 2011). The means for doing so comprise a set of procedures, varying from such evolved linguistic devices as *anaphora* (referring back to text, e.g. 'this', 'that'...) and *deixis* (referring back to context) to simple *ostensive pointing* (Bruner 1983, p. 68).

Deictic and Indexical Elements In Music

Introducing deictic elements in music can be done primarily by focusing on the concepts of *deictic space* and *temporal* and *spatial* deixis. Taking as a starting point Lakoff's metaphorical treatment of time as space (Lakoff 1993, p. 216), time can be understood in term of things (entities and locations) and motion. With respect to location, the present time is conceived mostly as being at the same location, future times are located in front of and past times behind the observer who functions as the deictic center. With respect to the motional aspect there are two possibilities: time is moving with respect to the observer or the observer is moving with respect to time (see Reybrouck 2004 for a discussion). The distinction is related to the perspective the listener takes on the music (Godøy 1997), especially with respect to his/her windows on the time-line and the more conceptual or experiential way of listening. There is, in fact, a distinction between a kind of *panoramic listening* with the music unfolding in time and the listener functioning as a stationary center as against the *moment-to-moment scanning* of the temporal unfolding of the sonorous articulation over time with the listener moving along with the music. The former represents the music at a glance, reducing the sequential aspects to a simultaneous image that can take a symbolic stance, the latter keeps step with the discrete particulars and idiosyncrasies of its unfolding, and, as such, does more justice to the musical experience proper.

Both modes of processing are illustrated in figure 1, which shows a waveform notation of "Farewell to Stromness" by Peter Maxwell Davies. The upper pane depicts the sonorous articulation of the whole piece (4.20 minutes of length) and offers a panoramic view of the whole unfolding. The little box at the left side of the upper pane, however, zooms in in the lower panes (left and right channel of the stereo track) and shows an unfolding of about 32.50 seconds. When playing back the fragment, the vertical cursor at the left side moves to the right allowing the listener to keep step with the unfolding in real time and to abandon his/her stationary position in favor of a position that moves along with each new now moment.

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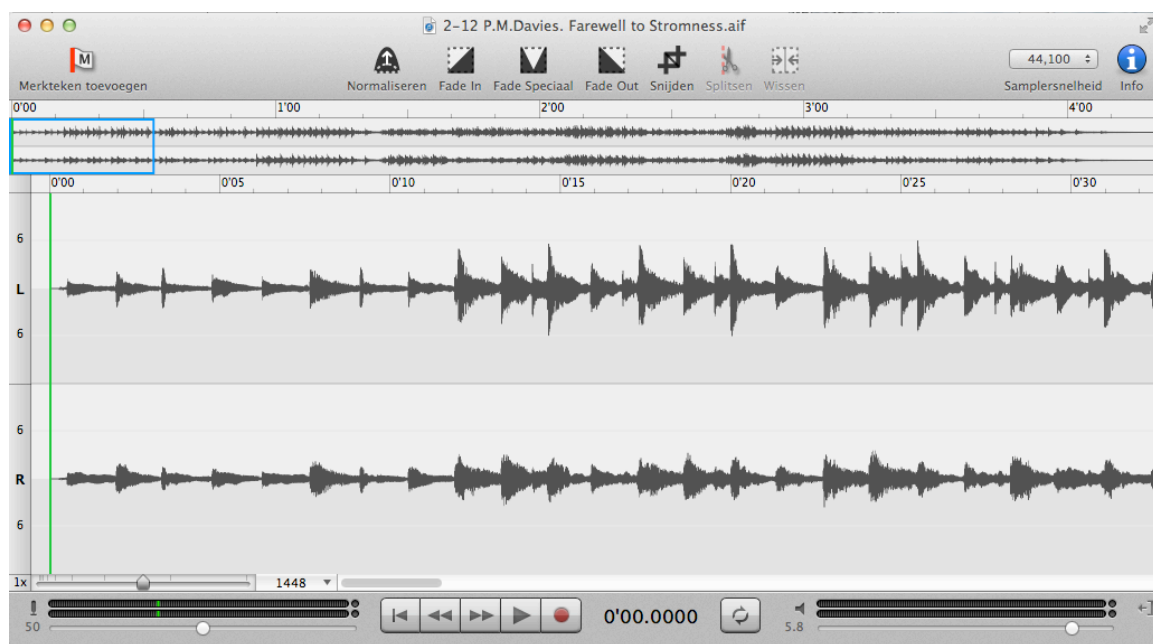


Figure 1. Depiction of the temporal unfolding of “Farewell to Stromness” by Peter Maxwell Davies both as a panoramic view (upper pane) and as a zoomed in window (lower pane).

In what follows, both modalities are brought together (Reybrouck 2005a, 2005b), leaning heavily on the theoretical groundings of William James who elaborated in depth on the relationship between ‘percept’ and ‘concept’. In his little-known but very important doctrine of *radical empiricism* he states that the significance of concepts consists always in their relation to perceptual particulars:

“We extend our view when we insert our percepts into our conceptual map ... but the map remains superficial through the abstractness, and false through the discreteness of its elements ... Conceptual knowledge is forever inadequate to the fullness of the reality to be known. Reality consists of existential particulars as well as of essences and universals and class-names, and of existential particulars we become aware only in the perceptual flux. The flux can never be superseded.” (James 1968, p. 245)

The perceptual flux, however, can be transformed into a succession of objects, as advocated by Pierre Schaeffer (1966) who conceived of ‘sonorous objects’ (*objet sonore*) as enabling a representation of delimited segments of the fluctuating musical substance in a more solid form. This transition is not without problems, but the concept of resolution may be helpful here. According to Godoy, it offers the possibility of *“thinking a musical object in different temporal representations, from “real time” versions to extremely compressed, i.e. “instantaneous” or “synoptic” kinds of representations, which have also been called “outside time” representations of musical objects”* (Godoy 1997, p. 11). Such a

shift in resolution allows the emergence of relatively stable forms on the basis of a rather unstable, complex and distributed substrate, allowing a ‘quantal orientation’ of meaning (Godøy 1997, p. 54, 149) as a hermeneutical extension of listening. This grasping of a meaning out of a flux allows the listener to interpret something as something – “*etwas als etwas*”, to use a Heideggerian expression (1977, p. 149) – and to conceive of this quantal and stable forms in categorical terms.

Pointing, as a deictic tool, therefore, can be directed to delimited segments of the sonorous unfolding, but can keep step with the perceptual flux as well. As such it offers the possibility to bridge the gap between *discrete* and *continuous* decoding, somewhat analogous to the difference between ‘categorical’ and ‘auditory’ perception (Handel 1989, p. 4, 274), with the former referring to the perceptual events as separate entities and the latter to the acoustic properties of the perceptual events, which are distributed over time.

Both approaches are helpful in dealing with sounding music. Listeners, in fact, must be able to foresee and to remember – this requires a kind of synoptic overview – but the experiential approach also requires a continuous scanning of the sonorous unfolding in search for discrete particulars and idiosyncrasies. Conceiving of the listener as a pointing device, moreover, provides means for giving an adequate identification of the place and time in this unfolding. This location process is depicted schematically in figure 2. At the actual now moment – a kind of moving origo – the listener can recollect in memory the previous events as well as anticipate future events.

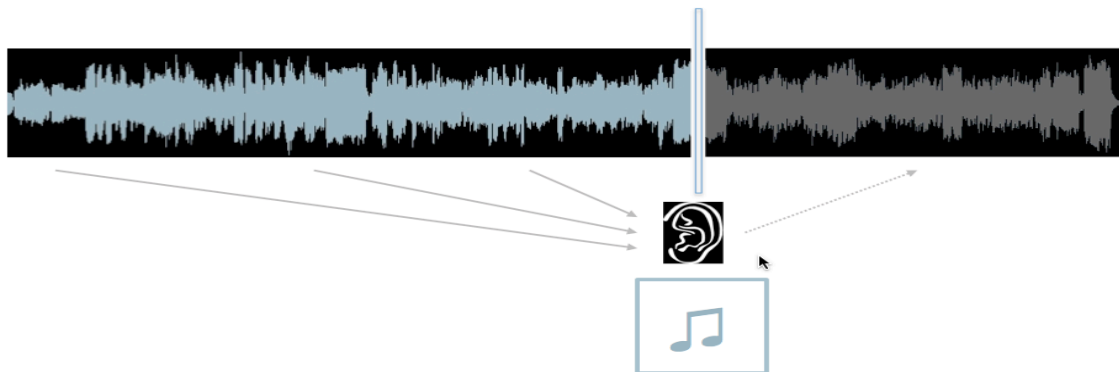


Figure 2. Schematic depiction of deictic listening with the actual now moment as a moving origo and the recollection of previous sounding events and anticipation of future events.

The result of such recollecting and anticipating behavior is the setting up of a *deictic space* with a basic reference point (Klein 1982). Deictic spaces, in general, are set up by summing up all possible *denotata* – the things or events that can be pointed at – of local deictics or localities (e.g. rooms, streets, cities, countries), but

the denotata need not be localities. They can be abstract places in a train of thought as well, as deictic spaces are sets of elements (the possible denotata) provided with some structure. It is possible, therefore, to conceive of music as a deictic space as well, and to use this conceptual tool in order to guide the listener in his or her involvement with the music. Listeners, in fact must go from ‘here’ to ‘there’ in a kind of mental journey through the music (Deliège 2001; Reybrouck 2010), and in order to do this, they must rely on a kind of cognitive representation of the crossed space. This can be done by working out a *cognitive map* or *route-description* that is the outcome of the structuring of previous and actual experiences. Cognitive maps, further, may be differently structured for different individuals, but even if they are vague, incomplete, or even wrong in some respects, they are very informative as to the way how individuals structure their own routes and how their attention may be focused on different objects or events (Klein 1982, p. 170).

Route-descriptions, further, can be handled in *anaphoric* terms, which means that participants of a referential exchange refer back (catadeixis) to things just treated (‘this’, ‘that’...) or to things that are to be treated immediately (anadeixis) (Ehlich 1982). In order to do this, they must have access to the flow of discourse as a whole, where parts may be re-taken up and anticipated. To quote Bühler (1982): “[the] whole must be accessible to sender and receiver, so that a wandering is possible, comparable to the passing of one’s gaze over an optically present object. ... The adequate production and reception of any piece of music, for example, requires not exactly this, but something similar” (p. 21).

Pointing as a Selection Device

The act of pointing is a primitive marking system for singling out the noteworthy. By emancipating itself from an object-oriented movement (merely grasping) to an act of pointing (Vygotsky 1978, p. 56) it realizes an internal reconstruction of an external operation, which can go so far as to ‘mentally pointing to things’ that are not physically present (James 1968, p.155). Such an act of pointing (externally or internally reconstructed) mostly begins with the emergence of a kind of *quality* in combination with an insistent particularity, e.g. ‘this is important’, ‘that is difficult’ (Whitehead 1968). The multiplicity of facts, however, requires a selection in dealing with them, and this selection requires the notion of relative importance. To quote James (1968): “Only new-born babies, or men in semi-coma from sleep, drugs, illness, or blows, may be assumed to have an experience pure in the literal sense of a ‘that’ which is not yet any definite ‘what’, tho’ ready to be all sorts of whats ... But the flux of it no sooner comes than it tends to fill itself with emphases, and these salient parts become identified and fixed and abstracted; so that experience now flows as if shot through with adjectives and nouns and prepositions and conjunctions” (p. 215).

We take thus as an essential aspect the construction of reality and the elevation of some entities to a special level of prominence within predications. This ‘designation’ is one of the pivotal constructs of *cognitive grammar*, as advocated by Langacker (1987), but it is essential also for all *constructivist claims* of reality. To quote Varela (1979): “...all of these items that we come to consider more or less permanent must, at some point, have been isolated and “individuated” in the field of our experience. This isolating and individuating necessarily had to be achieved by us, for it is we who

say that we are aware of them. That is, we must have differentiated them and cut them out from the rest of our experiential field - and by that very act the rest of our experiential field became their environment" (p. 273).

This singling out of entities is dependent upon the conceptual organization of the parties of a referential exchange. It demands that both speaker and listener know three things about objects: that they have an independent existence, apart from speaker and listener, that they can be individuated and that they belong to classes (Clark 1978). One can question the first assumption (independent existence) as it challenges modern conceptions about cognition and categorization (Dubois 1991). The act of singling out, however, is important, as is obvious from the use of *pragmatic anaphora* (deictic expressions that are accompanied by a pointing gesture, e.g. "I bought that [*pointing*] yesterday") (Jackendoff 1988).

Pragmatic anaphora refer to designated objects (things), but also to other ontological category features such as places, directions (paths or trajectories), actions, events, sounds, manners, amounts and numbers and all entities that can be raised to the level of identity and individuation. As such, they can be applied to the realm of music, especially with respect to the problem of musical sense-making in real time listening and the role of selective focusing and the general tendency toward event-perception as discrete, yet continuous things that can be pointed at (Handel 1989; Reybrouck 2005a).

Pointing as a Predication Process

Pointing to something uses this thing or event as an *ostensive* component. It is done frequently in language learning and in providing names for identifiable objects (Bateson 1985, p. 125; Kalagher & Yu 2006; Pizzuto & Capobianco 2008). Pointing, however, is *predicative* as well, if at least some generality can be ascribed to what is pointed at. Predication, further, is either 'direct' or 'mediated', dependent on whether or not some physical stimuli are presented to the senses, somewhat analogous to the problem of 'immediate' as against 'represented knowledge' (James 1968, p.152) and the distinction between 'direct knowledge' and 'symbolism' (Whitehead 1927, p.13). Direct knowledge provides first-hand knowledge, symbolic knowledge elicits consciousness, beliefs, emotions and usages, respecting other components of the experience proper. The role of *presentational immediacy*, therefore, is critical in setting out the borders between perception and consciousness. The latter, in fact, involves complex mediated processes that supplant the immediacy of natural perception, as stressed already in the early theoretical writings of Vygotsky (1978).

Listening, as a cognitive activity, is dependent both on perception and consciousness. At the perceptual level it can be defined as an articulation through time, with conceptualizations by the listener being added as the music proceeds. As such, it combines an 'experiential-perceptual' and 'symbolic-conceptual' approach (Reybrouck 2005a), both of which can be described in more operational terms in relying on Langacker's concepts of *processual predication* and *episodic nominalization*. The former (processual predication) follows the temporal evolution of a situation, and involves a continuous series of states that represent different phases of the process as occupying a continuous series of points in conceived time. The span of time during

which the evolution is tracked to is referred to as its temporal profile (Langacker 1987, p. 244). The latter (episodic nominalization), refers to just a single instance of the process and can be considered as a thing or event that can be characterized as a ‘bounded region’ in some domain. A beep, for instance, is bounded in both pitch and time. Duration is also limited for a blip and a flash, but a flash must be almost instantaneous, whereas a blip can persevere (Langacker 1987, p. 191).

Both concepts can be easily applied to the actual unfolding of music through time by cultivating the global qualities of delimited segments of musical unfolding rather than the more abstract kinds of structures encountered in some music theory (Godøy 1997). Such global qualities are dependent on the size of the segment under consideration at any given moment, but they can only emerge on the basis of a distributed substrate, as a collection of more ‘elementary’ units in succession. What matters is the recognition of the dual status of the musical substance as both having a ‘distributed substrate’ and a more or less ‘unitary’ emergent quality (Godøy 1997, p. 37).

Starting from the actual unfolding of music through time, listeners can thus select and (mentally) point to delimited segments of this unfolding, extending the position in a time-series from discrete slices of time to larger temporal spans. Or as Godøy (1997) puts it, it is possible to establish means of obtaining knowledge at different temporal levels (a single tone, a phrase, an entire movement) and, dependent upon the listener’s strategies, “*to move between different musical objects of different sizes, to “zoom” and “pan” both in and out and sideways and “filter out” different kinds of information*” (p. 40). These claims, again, are somewhat related to Langacker’s conception about focal adjustments such as *selection*, *perspective* and *abstraction*. Focal adjustments of selections determine which facets of a scene are dealt with. Perspective relates to the position from which a scene is viewed (in the case of the visual domain). It influences the object of our cognition and related problems such as figure/ground alignment and the viewpoint that is taken where a figure can be defined as “*a substructure perceived as “standing out” from the remainder (the ground) and accorded special prominence as the pivotal entity around which the scene is organized and for which it provides a setting*” (Langacker 1987, p. 120). The viewpoint, on the other hand can be understood as subsuming the notions vantage point and orientation, with the former referring to the position from which a scene is viewed, and the latter to the alignment with respect to the axes of the visual field. The concept of abstraction, finally, pertains to the level of specificity at which a situation is portrayed (Langacker 1987, p. 117).

Deixis and Categorization

Categorizing is a cognitive activity of utmost importance. As such, it has received a lot of theoretical grounding. According to James, e.g., it substitutes a conceptual order for a perceptual one (James 1968, p. 234). Or as Bruner *et al.* have put it: “*To categorize is to render discriminably different things equivalent, to group objects and events and people around us into classes, and to respond to them in terms of their class membership rather than their uniqueness.*” (Bruner,

Goodnow & Austin 1956, p. 1). In order to manage complex environments, we therefore categorize so that we must not react to every stimulus as if it should have its own and single signature.

Since these early definitions, much research has been done on categorization. The pioneering work of Rosch (1978) still stands out by offering some workable hypotheses with respect to its underlying mechanisms, such as the principle of *cognitive economy* and the *principle of reality*. The former stresses the importance of providing the maximum of information with the least cognitive effort; the latter claims that the perceived world is not unstructured, but that it consists of real and natural discontinuities and co-occurrent properties. What matters, then, is the process of recognition through identification and differentiation.

This process of recognition, further, involves *units* and their *relations*, both of which can be structured with respect to previous experiences (Langacker 1987), which may serve as a *standard* for an act of comparison in which some facet of a current experience functions as a *target*. When the difference between standard and target approximates zero, the overall event is one of recognition; when the similarity is only schematic, the recognition amounts to categorization.

Musical sense-making, accordingly, involves processes of categorization. In contrast to categorization in general, however, things are rather complicated with music so that several questions should be raised (Reybrouck 2003, 2009). What are, e.g., the units and the categories to be delimited? What kind of categorical judgments are to be made (nominal or processual)? And what are the ontological and epistemological assumptions? Are musical categories to be handled in terms of *realism* or *nominalism*? Should we conceive of them as real sounding things (realia) or as names to be assigned to them (nomina)? Or stated in different terms: should we deal with them in an ‘empirical’ or ‘mentalist’ way?

The questions are related to the distinction between classical (objectivist) and modern conceptions of categorization with a shift from a mere focus on perceptual attributes and names to categorizations in terms of functional qualities and action words (for an overview, see Dubois 1991; Reybrouck 2012; Schiavio et al. forthcoming). A chair, for example, affords sitting for an adult person, but it does not for a child for whom it affords only crawling or hiding under. Different perceivers who vary in their morphological and kinematic details, as well as in their goal-directed activities and individual learning histories will therefore respond differently to what it affords for them (Mazet 1991; Krueger 2014). This brings us to an affordance-based approach to perception where what matters is not merely the world in its objective qualities, but the world as perceived by observers.

There is no space to elaborate on this affordance-based approach in this contribution (see Reybrouck 2012; Krueger 2014), which is centered around the special status of music as a temporal art and the role of mental pointing with a gradual shift from mere pointing as a physical act over classifying to identifying with a corresponding transition from a nominal to a processual approach.

Taking as a starting point the sonorous articulation through time, as a substrate for pure experience, it is possible to put a *categorization grid* on the sonorous unfolding. Such a grid can be limited to an existing grid of

prototypes (a kind of lexicon of stylistic or panstylistic universals consisting of notes, motifs, phrases, chords, cadences, rhythmical patterns, metrical groupings, etc.) but it can embrace variable categories (ill-defined categories without fixed boundaries) as well. Categories, however, must have at least some cue validity, so that they can lean themselves to identification and differentiation (Goldstone 1994). In the field of music, however, much research still has to be done (see e.g. McAdams 1993; Zbikowski 2002). The pioneering work of Schaeffer (1977) and Chion (1983, 1988) on the classification of sound and more recent work on the analysis of electroacoustic music (Landy 1999; Couprie 2004) should be mentioned here. Some questions, however, can be raised which may be important for future research.

A first problem concerns the distinction between *discrete* and *continuous* categories. Most categorizations, as nominal predicates, refer to discrete things, rather than to events, which are continuous in their unfolding. Music, however, is a temporal art, with musical things being considered as events rather than things. Listeners, in fact, do not perceive the acoustical environment in terms of ‘phenomenological descriptions’ but as ‘ecological events’ (Balzano 1986; Lombardo 1987; Reybrouck 2005a). The distinction is related to the basic difference between continuous and discrete processing with events—and also auditory events – being continuous in their unfolding but discrete in their labeling. Events moreover, are basic building blocks in perception – this is the event perception hypothesis – which behave as sequences of stimuli that are extended in time and which function as units in perception and memory. As such, there is a difference between the ‘recognition’ of a sounding object or an event as a discrete entity and the ‘experience proper’ of its sonorous articulation through time. As soon as we recognize something as something, we stop acoustical processing in favor of conceptual processing which allows us to conceive of events in a propositional way. Such propositional processing is much quicker and less demanding as to its processing effort as it is much easier to select and delimit events and to pick them up in an act of episodic attention than to deal with them in an act of sustained attention. This, again, is in a nutshell the core assumption of cognitive economy (Reybrouck 2005a).

Listening to music, accordingly, can be considered in terms of ‘event perception’, which, in turn, can be considered as a kind of top-down processing of the music with schemata, which are imposed on the sound (Godoy 2006). What we hear are not *acoustic properties* but *acoustic events*, which receive significance as the result of a process of semiotization of the sonic world. As such, it is possible to conceive of musical events as higher-order variables, which can be described as having time-varying complex acoustic properties with temporal constraints, which may involve a transition from ‘high-frequency’ (in the range of about 10 milliseconds) or ‘high-resolution’ processing to perceptual units (in the range of 2-3 seconds) which allow event identification over time (Wittmann 1999; Wittmann & Pöppel 1999-2000). Most musical events, e.g., have a clearly defined beginning and ending and have a gross temporal patterning as well (Handel 1989). As such they hold a position between ‘invariance’ and ‘change’, allowing processes of discrete labeling and categorization.

A second problem is the *scope* of predication. Music has temporal as well as atemporal aspects of organization, but in both cases there are plenty of componential elements that must be handled at once. Langacker's concepts of *sequential* and *summary scanning* are interesting here. They provide contrasting modes of cognitive processing for structuring a complex in ways that are experientially quite different: "*Summary scanning is basically additive, and the processing of conceptual components proceeds roughly in parallel. All the facets of the complex scene are simultaneously available, and through their coactivation ... Sequential scanning ... involves the successive transformations of one configuration into another*" (Langacker 1987, p. 248).

Both modes of processing are depicted schematically in figure 3, which illustrates the conceptual flexibility to process a complex scene in two different modes. It is possible to structure the scene as a process by activating the component states sequentially and to experience them successively with the passage of processing time. It is possible, however, to activate also the component states simultaneously by means of summary scanning and to superimpose them as to form a single gestalt.



Figure 3. Sequential and summary scanning (adapted from Langacker 1987). The upper part of the figure shows the sequential states of a falling ball. The lower part shows the summing up of these states in one simultaneous image.

The combination of sequential and summary scanning, further, is somewhat related to the *gestural-dynamical reconstruction* of the music (Gritten & King 2013). Mentally pointing to the music, in fact, is mostly not episodic, but involves a continuous process, a succession of gestures with a minimal span of time. The listening process, then, can be described in terms of internalized gestures that follow the articulation of the sounds and that may receive a kind of unit status and become the object of 'motor' categorizations (Reybrouck 2001; Godøy 2003, 2006). These categorizations, however, have a hybrid status in the sense that they rely on a kind of continuous knowledge representation that is analogue and procedural rather than declarative. It is the kind of knowledge that comes from physically generating forms as illustrated in the idea of *phoronomy* – from the Greek for 'to drag' – as it was introduced by Kant in his *Metaphysical Foundations of Natural Science* (1770/1786, p. 30, 41; see also Walker 1995) and elaborated in mathematics, for example by emphasizing the act of tracing a geometrical form, such as a curve, rather than looking at it as a static depiction or object. The 'phoronomic

understanding' of a shape thus comes from a continuous and indivisible experience of movement (Dogantan-Dack 2007).

The phoronomic approach, finally, can be related also to the conceptual framework of *embodied* or *enactive cognition* (Johnson 1987; Lakoff & Johnson 1999; Schiavio et al., forthcoming). Music, in this view, is not described in terms of perceptual properties, but in terms of schemas and frames which take the body as a point of reference. One of these schemas – the *source–path–goal schema* – is closely related to the phoronomic approach. It states that every time we move anywhere there is a place we start from (the source), a destination (end point), a path (a sequence of contiguous locations connecting the source and the destination), and a direction (toward the destination) (Lakoff 1988). It is not difficult to apply this schema to the act of listening to music. This work, however, mostly still has to be done.

Conclusion

Starting from the distinction between music as structure and music as a process, this contribution argues for an experientialist approach to music. Relying on the conceptual framework of deixis and the related notions of pointing and indexicality, it conceives of listeners as deictic devices that are able to locate themselves in the context of the perceptual flux by selective focusing on actual now moments and by recollecting previous ones in memory and anticipating future ones in imagination. In doing so, they can set up a deictic field with temporal, spatial and personal coordinates, which can be elaborated in more operational terms by working out a cognitive map or route-description of the sounding music. The elaboration of their maps may differ between individual listeners and even between different listening moments of the same listener, dependent on the perspective taken on the music (instantaneous or synoptic overview as against moment to moment scanning of the temporal unfolding) and the level of abstractness and distance with respect to the sounding music. Rather than thinking in terms of dichotomies between continuous and discrete decoding of the music, between sequential and summary scanning, and between processual predication or episodic nominalization, it is argued, further, that mental pointing to the music can be selective, predicative, categorical and even enactive and gestural-dynamic. None of them should claim to hold the truth, but the combination of these approaches should result in a richer musical experience that does justice to the definition of music as a temporal and sounding art.

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